

IN THE CLAIMS

1. An audio reproducing apparatus, comprising:  
  
control means for controlling entire behaviors;  
  
storage means for writing and reading data;  
  
audio expanding means for expanding compressed audio data;  
  
external I/O means for transferring incoming and outgoing data, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data; and  
  
a personal computer standard bus for transmitting data among said control means, said storage means, said audio expanding means and said external I/O means, so that compressed audio data is stored in said storage means, and said compressed audio data is transferred to and expanded by said audio expanding means to be audibly reproduced.
2. The audio reproducing apparatus according to claim 1, wherein said storage means is a card-shaped recording medium.
3. The audio reproducing apparatus according to claim 1, wherein said storage means is a card-shaped hard disc.
4. The audio reproducing apparatus according to claim 1, wherein said personal computer standard bus is one of external buses including an ISA bus used in AT compatible machines and local buses including a PCI bus.

5. An audio recording apparatus, comprising:  
control means for controlling entire behaviors;  
storage means for writing and reading data;  
audio compressing means for compressing audio data;  
external I/O means for transferring incoming and outgoing data; and  
a personal computer standard bus for transmitting data among said control means,  
said storage means, said audio compressing means and said external I/O means, wherein  
incoming data sent in a predetermined format is transferred through said external I/O means,  
and compressed audio data is generated from the transferred incoming data and stored in said  
storage means, the transferring of incoming and outgoing data operative to charge an account  
associated with the transfer of such incoming and outgoing data.

6. The audio reproducing apparatus according to claim 5, wherein said storage means  
is a card-shaped recording medium.

7. The audio reproducing apparatus according to claim 5, wherein said storage means  
is a card-shaped hard disc.

8. The audio recording apparatus according to claim 5, wherein said personal  
computer standard bus is one of external buses including an ISA bus used in AT compatible  
machines and local buses including a PCI bus.

9. An audio recording and reproducing system, comprising:  
an audio recording and reproducing apparatus incorporating control means for controlling

entire behaviors;

storage means for writing and reading data;

audio expanding means for expanding compressed audio data;

external I/O means for transferring incoming and outgoing data, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data;

first functional means removably attached to said audio recording and reproducing apparatus to add a supplementary function to said audio recording and reproducing apparatus;  
and

second functional means removably attached to said audio recording and reproducing apparatus to add a new function to said audio recording and reproducing apparatus.

10. The audio recording and reproducing system according to claim 9, wherein said first functional means has a structure that can contain the entirety of said audio recording and reproducing apparatus.

11. The audio recording and reproducing system according to claim 9, wherein said first functional means has a communication function and/or a power supply function.

12. The audio recording and reproducing system according to claim 9, wherein said second functional means is in form of a card that can be held within said audio recording and reproducing apparatus.

13. An audio recording and reproducing system comprising:

an audio recording and reproducing apparatus incorporating control means for controlling entire behaviors, storage means for writing and reading data, audio expanding means for expanding compressed audio data, and external I/O means for exchanging incoming data;

first functional means removably attached to said audio recording and reproducing apparatus to add a supplementary function to said audio recording and reproducing apparatus; and

second functional means removably attached to said audio recording and reproducing apparatus to add a new function to said audio recording and reproducing apparatus,

wherein said second functional means adds the function of at least one of video compression, facsimile transmission, wireless transmission, pager, navigation and wire transmission.

14. The audio recording and reproducing system according to claim 13, wherein said first functional means has a structure that can contain the entirety of said audio recording and reproducing apparatus.

15. The audio recording and reproducing system according to claim 13, wherein said first functional means has a communication function and/or a power supply function.

16. The audio recording and reproducing system according to claim 13, wherein said second functional means is in form of a card that can be held within said audio recording and

reproducing apparatus.

17. An audio data transmission method, comprising the steps of:  
receiving desired audio data through a communication line from an audio data base storing a plurality of pieces of audio data;

storing said audio data in a receiver to thereafter reproduce the audio data within the receiver, wherein

said audio data base is configured to send out to said receiver data in a predetermined transmission format for and to charge the service to an account of said receiver, the data in a predetermined transmission format including the audio data.

18. The audio data transmission method according to claim 17, wherein said receiver obtains audio data by decomposing the data in said predetermined transmission format.

19. The audio data transmission method according to claim 17, wherein said audio data base and said receiver are connected via public telephone line.

20. An information receiving apparatus, comprising:  
means for choosing desired audio data from an audio data base storing a plurality of pieces of audio data;

means for receiving desired audio data through a communication line and for storing the chosen audio data; and

means for reproducing the stored audio data, wherein in response to receipt of the desired audio data an account associated with the receipt of desired audio data is charged.

21. An audio reproducing apparatus, comprising:  
a memory for writing and reading data;  
an expander for expanding compressed audio data;  
an external I/O port for transferring incoming and outgoing data, the transferring of  
incoming and outgoing data operative to charge an account associated with the transfer of  
such incoming and outgoing data;  
a processor for controlling the memory, the expander and the external I/O port; and  
a personal computer standard bus for transmitting data among said processor, said  
memory, said expander and said external I/O port, so that compressed audio data is stored in  
said memory, and said compressed audio data is transferred to and expanded by said  
expander to be audibly reproduced.

22. The audio reproducing apparatus according to claim 21, wherein said memory is a  
card-shaped recording medium.

23. The audio reproducing apparatus according to claim 21, wherein said memory is a  
card-shaped hard disc.

24. The audio reproducing apparatus according to claim 21, wherein said personal  
computer standard bus is one of external buses including an ISA bus used in AT compatible  
machines and local buses including a PCI bus.

25. An audio recording apparatus, comprising:  
a memory for writing and reading data;

a compressor for compressing audio data;  
an external I/O port for transferring incoming and outgoing data;  
a processor for controlling the memory, the compressor and the external I/O port; and  
a personal computer standard bus for transmitting data among said processor, said  
memory, said compressor and said external I/O port, wherein incoming data sent in a  
predetermined format is transferred through said external I/O port, and compressed audio  
data is generated from the transferred incoming data and stored in said memory, the  
transferring of incoming and outgoing data operative to charge an account associated with the  
transfer of such incoming and outgoing data.

26. The audio reproducing apparatus according to claim 25, wherein said memory is a  
card-shaped recording medium.

27. The audio reproducing apparatus according to claim 25, wherein said memory is a  
card-shaped hard disc.

28. The audio recording apparatus according to claim 25, wherein said personal  
computer standard bus is one of external buses including an ISA bus used in AT compatible  
machines and local buses including a PCI bus.

29. An audio recording and reproducing system, comprising:  
an audio recording and reproducing apparatus, comprising a memory for writing and  
reading data, an expander for expanding compressed audio data, an external I/O port for  
transferring incoming and outgoing data, the transferring of incoming and outgoing data

operative to charge an account associated with the transfer of such incoming and outgoing data, and a processor for controlling the memory, the expander and the external I/O port;

a first functional device removably attached to said audio recording and reproducing apparatus configured to add a supplementary function to said audio recording and reproducing apparatus; and

second functional device removably attached to said audio recording and reproducing apparatus configured to add a new function to said audio recording and reproducing apparatus.

30. The audio recording and reproducing system according to claim 29, wherein said first functional device is configured to contain the entirety of said audio recording and reproducing apparatus.

31. The audio recording and reproducing system according to claim 29, wherein said first functional device has a communication function and/or a power supply function.

32. The audio recording and reproducing system according to claim 29, wherein said second functional device is in form of a card that can be held within said audio recording and reproducing apparatus.

33. (Amended) An audio recording and reproducing system comprising:  
an audio recording and reproducing apparatus comprising, a memory for writing and reading digital audio data, an expander for expanding compressed audio data, and an external



I/O port for exchanging incoming data, and a processor for controlling the memory, the expander and the external I/O port;

a first functional device removably attached to said audio recording and reproducing apparatus configured to add a supplementary function to said audio recording and reproducing apparatus;

a second functional device removably attached to said audio recording and reproducing apparatus configured to add another function to said audio recording and reproducing apparatus, and

wherein said second functional device adds the function of at least one of video compression, facsimile transmission, wireless transmission, pager, navigation and wire transmission.

34. The audio recording and reproducing system according to claim 33, wherein said first functional device is configured to contain the entirety of said audio recording and reproducing apparatus.

35. The audio recording and reproducing system according to claim 33, wherein said first functional device has a communication function and/or a power supply function.

36. The audio recording and reproducing system according to claim 33, wherein said second functional device is in form of a card that can be held within said audio recording and reproducing apparatus.

37. An information receiving apparatus, comprising:

a user interface for choosing desired audio data from an audio data base and for storing a plurality of pieces of audio data;

a communication device for receiving desired audio data through a communication line and for storing the chosen audio data; and

a reproduction device for reproducing the stored audio data, wherein in response to receipt of the desired audio data an account associated with the receipt of desired audio data is charged.

38. An audio reproducing method, comprising the steps of:  
writing and reading data to and from a memory;  
expanding compressed audio data;  
transferring incoming and outgoing data via an external I/O port, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data;  
controlling the memory, the expander and the external I/O port; and  
transmitting data on a personal computer standard bus, so that compressed audio data is stored in said memory, and said compressed audio data is transferred to and expanded by said expander to be audibly reproduced.

39. The audio reproducing method according to claim 38, wherein said memory is a card-shaped recording medium.

40. The audio reproducing method according to claim 38, wherein said memory is a card-shaped hard disc.

41. The audio reproducing method according to claim 38, wherein said personal computer standard bus is one of external buses including an ISA bus used in AT compatible machines and local buses including a PCI bus.

42. An audio recording method, comprising the steps of:  
writing and reading data to and from a memory;  
compressing audio data;  
transferring incoming and outgoing data via an external I/O port;  
controlling the writing and reading, the compressing and the transferring; and  
transmitting data on a personal computer standard bus, wherein incoming data sent in a predetermined format is transferred through said external I/O port, and compressed audio data is generated from the transferred incoming data and stored in said memory, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data.

43. The audio reproducing method according to claim 42, wherein said memory is a card-shaped recording medium.

44. The audio reproducing method according to claim 42, wherein said memory is a card-shaped hard disc.

45. The audio recording method according to claim 42, wherein said personal computer standard bus is one of external buses including an ISA bus used in AT compatible machines and local buses including a PCI bus.

46. An audio recording and reproducing method, comprising the steps of:  
writing and reading data to and from a memory;  
expanding compressed audio data;  
transferring incoming and outgoing data via an external I/O port, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data; and  
controlling the writing and reading, the expanding and the transferring, wherein a supplementary function is added by removably attaching a first functional device,  
and  
a new function is added by removably attaching a second functional device.

47. The audio recording and reproducing method according to claim 46, wherein said first functional device is configured to contain the entirety of said audio recording and reproducing apparatus.

48. The audio recording and reproducing method according to claim 46, wherein said first functional device has a communication function and/or a power supply function.

49. The audio recording and reproducing method according to claim 46, wherein said second functional device is in form of a card that can be held within said audio recording and reproducing apparatus.

50. An audio recording and reproducing method comprising the steps of:  
writing and reading data to and from a memory;  
expanding compressed audio data;  
transferring incoming and outgoing data via an external I/O port, the transferring of incoming and outgoing data operative to charge an account associated with the transfer of such incoming and outgoing data; and  
controlling the writing and reading, the expanding and the transferring, wherein  
a supplementary function is added by removably attaching a first functional device,  
and  
a new function is added by removable attaching a second functional device,  
wherein said second functional device adds the function of at least one of video compression, facsimile transmission, wireless transmission, pager, navigation and wire transmission.

51. The audio recording and reproducing method according to claim 50, wherein said first functional device is configured to contain the entirety of said audio recording and reproducing apparatus.

52. The audio recording and reproducing method according to claim 50, wherein said first functional device has a communication function and/or a power supply function.

53. The audio recording and reproducing method according to claim 50, wherein said second functional device is in form of a card that can be held within said audio recording and reproducing apparatus.

54. An information receiving method, comprising the steps of:  
choosing desired audio data from an audio data base and storing a plurality of pieces of audio data;  
receiving desired audio data through a communication line and for storing the chosen audio data; and  
reproducing the stored audio data, wherein in response to receipt of the desired audio data an account associated with the receipt of desired audio data is charged.

55. An memory interface apparatus, comprising:  
an internal bus;  
an external memory connector for removable coupling a memory card;  
a memory port connected to the external memory connector and coupled to the internal bus;  
a plurality of external device connectors, each for coupling to a device that operates with the memory card;  
a device port connected to each external device connector, the device port coupled to the internal bus;  
a control panel coupled to the internal bus for designating an operation mode of the interface apparatus; and

a controller coupled to the internal bus, the controller responsive to the control panel for enabling communication between the memory card and at least one device coupled to at least one of the plurality of external device connectors.

56. A memory interface apparatus according to claim 55, wherein the device port comprises:

an analog to digital convertor for digitizing an input signal; and  
a compressor for compressing the digitized input signal.

57. A memory interface apparatus of claim 55, wherein the device port comprises:

an expander for expanding a signal communicated from the memory card; and  
a digital to analog convertor for converting the expanded signal into an analog signal.

58. The memory interface apparatus of claim 55, wherein the memory card comprises:

a card-shaped hard disc.

59. The memory interface apparatus of claim 55, wherein the internal bus is a one of external buses including an ISA bus used in AT compatible machines and local buses including a PCI bus.

60. The memory interface apparatus of claim 55, wherein the control panel comprises:

a liquid crystal display.

61. The memory interface apparatus of claim 55, wherein the interface controller comprises:

a central processing unit.

62. The memory interface apparatus of claim 55, further comprising:  
at least one external device coupled to a respective external device connector, wherein the external device enables communication between a user and the memory card.

63. The memory interface apparatus of claim 62, wherein the at least one external device comprises:

one of a microphone and a headphone.

64. An memory interface apparatus, comprising:  
an internal bus;  
an external memory connector for removably coupling an external memory;  
a memory port connected to the external memory connector and coupled to the internal bus;  
a plurality of external device connectors, each for coupling to a device that operates with the external memory;  
a device port connected to each external device connector, the device port coupled to the internal bus;  
a control panel coupled to the internal bus for designating an operation mode of the interface apparatus; and



a controller coupled to the internal bus, the controller responsive to the control panel for enabling communication between the external memory and at least one device coupled to at least one of the plurality of external device connectors.

65. A memory interface apparatus according to claim 64, wherein the device port comprises:

an analog to digital convertor for digitizing an input signal; and

a compressor for compressing the digitized input signal.

66. A memory interface apparatus according to claim 64, wherein the device port comprises:

an expander for expanding a signal communicated from the memory card; and

a digital to analog convertor for converting the expanded signal into an analog signal.

67. The memory interface apparatus of claim 64, wherein the external memory comprises:

a card-shaped recording medium

68. The memory interface apparatus of claim 64, wherein the external memory comprises:

a card-shaped hard disc.

69. The memory interface apparatus of claim 64, wherein the internal bus is a one of external buses including an ISA bus used in AT compatible machines and local buses including a PCI bus.

70. The memory interface apparatus of claim 64, wherein the control panel comprises:  
a liquid crystal display.

71. The memory interface apparatus of claim 64, wherein the interface controller comprises:  
a central processing unit.

72. The memory interface apparatus of claim 64, further comprising:  
at least one external device coupled to a respective external device connector, wherein the external device enables communication between a user and the memory card.

73. The memory interface apparatus of claim 64, wherein the at least one external device comprises:  
one of a microphone and a headphone.

74. A memory interface apparatus comprising:  
an internal bus;  
an external memory connector for removable coupling a memory card;

a memory port connected to the external memory connector and coupled to the internal bus;

a plurality of external device connectors, each for coupling to a device that operates with a memory card;

at least one internal memory device coupled to the internal bus;

an input key coupled to the internal bus;

a compressor/expander coupled to the internal bus;

an analog to digital convertor coupled between the compressor/expander and one of the plurality of external device connectors;

a digital to analog convertor coupled between the compressor/expander and another one of the plurality of external device connectors;

a control panel coupled to the internal bus for designating an operation mode of the interface apparatus;

a driver coupled between the internal bus and the control panel; and

a controller coupled to the internal bus, the controller responsive to the control panel for enabling communication between the memory card and at least one device coupled to the plurality of external device connectors.

75. The memory interface apparatus of claim 74, wherein the at least one internal memory device comprises:

one of a hard disc, a read only memory and a random access memory.

76. An audio reproducing apparatus comprising:

a memory configured to have digital audio data written to and read therefrom,

an expander configured to expand compressed audio data,  
a first external I/O port,  
a second I/O port, and  
a processor configured to control the memory, the expander, the external I/O port, and  
the second I/O port;  
a first functional device removably attached to said first external I/O port and  
configured to add a supplementary function to said audio recording and reproducing  
apparatus; and  
a second functional device removably attached to said second I/O port and configured  
to add another function to said audio recording and reproducing apparatus,  
wherein said another function added by second functional device includes a wire  
transmission capability for exchanging digital audio data with an external computer.

77. An audio reproducing system comprising:  
an audio reproducing apparatus including  
a hard disc configured to have digital audio data written to and read therefrom,  
a display configured to display indicia of audio files stored on said hard disc,  
user actuated control features including a fast-forward control, a play control and a  
rewind control,  
an expander configured to expand compressed audio data,  
a first external I/O port,  
a second I/O port, and  
a processor configured to control the memory, the expander, the external I/O port, and  
the second I/O port, wherein

the first external I/O port is configured to connect to a first functional device that adds a supplementary function to said audio reproducing apparatus, and

the second I/O port is configured to connect to a second functional device that adds another function to said audio recording and reproducing apparatus,

said another function added by second functional device includes a wire transmission capability for exchanging digital data with an external computer.

78. An audio recording and reproducing system comprising:

an audio reproducing apparatus including

a hard disc configured to have digital audio data written to and read therefrom,

an expander configured to expand compressed audio data, an

external I/O port for exchanging incoming data,

a display,

fast-forward and rewind keys, and

a processor configured to control the memory, the expander and the external I/O port;

a first functional device removably attached to said audio recording and reproducing apparatus and configured to add a supplementary function to said audio recording and reproducing apparatus;

a second functional device removably attached to said audio recording and reproducing apparatus and configured to add another function to said audio recording and reproducing apparatus,

wherein said second functional device adds at least one of video compression function, facsimile transmission function, wireless transmission function, pager function, navigation function and wire transmission function.

79. An information receiving apparatus, comprising:

a user interface configured to  
display candidate audio titles in an audio database for selection therefrom, and  
effect storage of predetermined audio data pieces selected from said candidate audio  
titles;

a communication device configured to receive the predetermined audio data through a  
communication connection and for storing the predetermined audio data in memory; and  
a reproduction device configured to receive the predetermined audio data and store  
the predetermined audio data on a hard disc contained therein, wherein in response to receipt  
of the predetermined audio data, an account associated with the receipt of predetermined  
audio data is charged.

80. A terminal for accessing a digital audio data file from a remote computer-based  
system that provides access to said digital audio data file on a fee basis, said terminal  
comprising:

a personal computer bus configured to interconnect a CPU,  
a memory configured to store the digital audio data file once sent from said remote  
computer-based system, and  
an input/output device configured to provide a connection to a network for  
communications with said remote computer-based system, and  
connect to a user interface device;  
a display configured to display candidate audio titles available for download from said  
remote computer-based system, said user interface device being configured to identify a user-  
selectable audio title displayed on said display;

a data interface configured to provide said digital audio data file to a portable audio reproduction device that is configured to hold and play said digital audio data file even if not connected to said terminal.

81. The terminal of claim 80, wherein said input/output device is configured to provide a TCP/IP connection with said remote computer-based system.